Physiotherapy Management of Adults with Asthma: A survey of New Zealand Practice

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ABSTRACT

The role of physiotherapy in adult asthma management in New Zealand is unknown. Contemporary guidelines, including NZ Adolescent and Adult Asthma Guidelines (NZA & AAG), make little reference to physiotherapy. An electronic survey was undertaken to explore the role of physiotherapy in New Zealand in the management of adults with asthma, including what assessment and management techniques were used, self-reported confidence in these techniques, and guiding documents that informed practice. Findings from 59 respondents indicated that New Zealand physiotherapists were not only undertaking generic assessment and management techniques but provided a unique physiotherapy-specific role including breathing retraining and airway clearance techniques. Areas of reduced confidence were identified to guide future training and advanced practice. Physiotherapists were also well placed to influence social determinants at a policy level. While the response rate was limited, this study provides a useful insight into physiotherapy practice in New Zealand in the management of adults with asthma and identifies areas for more holistic practice, as well as future professional advancement.

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INTRODUCTION

Asthma is a respiratory condition affecting all age groups with increasing worldwide prevalence (Global Initiative for Asthma [GINA], 2023). In New Zealand, 20% of the population has asthma, with prevalence highest among Māori and Pacific adults (Beasley et al., 2020; Telfar Barnard & Zhang, 2021). Hospitalisation and mortality for Māori also remain highest compared to other ethnic groups (Telfar Barnard & Zhang, 2021). In addition, inequities in care contribute to poorer health outcomes, with Māori and Pacific people less likely to have their asthma treatment escalated appropriately (Gillies et al., 2013; Telfar Barnard & Zhang, 2021). Asthma is recognised as a significant worldwide health burden (GINA, 2023), with the cost of asthma (adults aged 15+ years) to the New Zealand economy in 2017 estimated to be $407,025,795 (Telfar Barnard & Zhang, 2021). Asthma management, therefore, has become a priority to reduce the impact and burden on health services, individuals, and communities nationally (Beasley et al., 2020) and internationally (World Health Organization, 2024).

Recognised as a chronic inflammatory disease, the exact cause of asthma remains unknown. Environmental and genetic factors are acknowledged as important considerations (Stern et al., 2020), provoking allergic or non-allergic reactions that irritate the airways, resulting in hyperresponsiveness and partial or total airflow obstruction (Becker & Abrams, 2017). Characteristic clinical features may include breathlessness, wheeze, chest tightness, and cough, which vary in intensity and timeframe (Beasley et al., 2020; GINA, 2023).

People with potential asthma may present to general practitioners (GPs), practice nurses, emergency departments, or self-diagnose. While no reliable single "gold standard" diagnostic test exists (Beasley et al., 2020), diagnosis is based on a comprehensive history of clinical features, including symptom pattern, variability of peak expiratory flow, and assessment of responsiveness to bronchodilator therapy, typically measured with spirometry (Beasley et al., 2020; GINA, 2023) and, more recently, measurement of fractional exhaled nitric oxide (FeNO) (Schneider et al., 2022). Management focus is on the treatment of airway inflammation, and modifiable risk factors and co-morbidities. Non-pharmacological and pharmacological strategies (GINA, 2023) are implemented by a range of health professionals, including doctors, nurses, pharmacists, and physiotherapists (Asthma education in primary care. A focus on improving outcomes for Māori and Pacific Peoples, 2015; Beasley et al., 2020). Pharmacological management is guided by a step-wise algorithm approach to airway management, including bronchodilator and anti-inflammatory agents (Beasley et al., 2020; GINA, 2023), and in severe uncontrolled asthma, injectable biologic treatments (Beasley et al., 2020; McCracken

et al., 2016). The relapsing-remitting pattern, with periods of acute exacerbations and fluctuations throughout the individual's life, requires constant review and adjustments to management (Beasley et al., 2020; GINA, 2023). Pharmacological management traditionally lies within the scope of physicians and nursing staff with prescribing rights. Clinical responsibility for the wider role, in terms of assessment and non-pharmacological management of asthma, remains unclear.

Non-pharmacological strategies could include education regarding asthma and the role and administration of inhalers, breathlessness management, and lifestyle modification (Beasley et al., 2020). Education, in particular, self-management strategies, including action plans, are integral to asthma management (Beasley et al., 2020; British Thoracic Society and the Scottish Intercollegiate Guidelines Network [BTS & SIGN], 2019; GINA, 2023) and can be provided by a variety of health professionals. Practice nurses and pharmacists typically provide community-based education regarding inhaler management and spacer use (Asthma Education in Primary Care. A focus on improving outcomes for Māori and Pacific Peoples, 2015). Physiotherapists, in comparison, not only can provide all aspects of non-pharmacological management across a wide variety of health environments, but also offer additional value to asthma management through provision of physiotherapy-specific techniques. Improved respiratory mechanics, postural rehabilitation and relaxation, for example, were identified as beneficial in reducing exacerbation frequency and symptom intensity in a systematic review of physiotherapy treatment in asthma management (Garagorri-Gutiérrez & Leirós-Rodríguez, 2020). In contrast, physiotherapy has limited visibility in the reviewed guidelines, with physiotherapy recommended as optional in the provision of "breathing exercise programmes" to reduce symptom burden and improve quality of life (BTS & SIGN, 2019, p. 7). The value of physiotherapy in the provision of generic and profession-specific techniques remains unrecognised. Interestingly, in recent years, other professions and therapies have emerged in the management of adults with asthma, for example, chiropractic care (Kaminskyj et al., 2010); osteopathy (Lago et al., 2015; Schend et al., 2020); Tai Chi (Sharma & Haider, 2013), yoga (Yang et al., 2019), and singing (Lewis et al., 2016), responding potentially to consumer preference towards non-pharmacological management. Rongoā Māori (Māori healing practices and healthcare) are also used in New Zealand to promote improved wellbeing in people with asthma (Te Hiku Media, 2022).

Increased focus from the perspective of all health professionals, including physiotherapists, has highlighted the importance of not only individual and population-based asthma management but also in addressing social determinants of asthma in New Zealand, including smoking, unhealthy housing, and reduced health literacy, as well as advocating for equitable asthma outcomes at a policy level (Heaps, 2023).

Guiding documents

Clinical practice guidelines are recommended to frame assessment and management. International guidelines, including those published by GINA (2023), BTS & SIGN (2019), and historically, the joint British Thoracic Society and the Association of Chartered Physiotherapists in Respiratory Care guidelines for the physiotherapy management of the adult, medical, spontaneously breathing patient (Bott et al., 2009) have shaped therapy. While global in nature, they lack responsiveness to the unique demographics, social and cultural realities, and health service delivery of New Zealand. In response to this, in 2020, the NZA & AAG were published (Beasley et al., 2020) and provide health professionals with best-practice guidelines contextualised to the New Zealand population and health system. Of note, physiotherapists were not included in the authorship. The guidelines advocate for a holistic approach, shared patient goals, and precise yet personalised care appropriate to the person's level of health literacy (Beasley et al., 2020). A strong focus is on reducing health inequities and the provision of culturally appropriate services and resources, including health literacy and asthma education for whānau (Beasley et al., 2020). A more representative health workforce, including Māori leadership, was also advocated. Health professionals are the target audience for these guidelines; however, the professions are not specifically named. Additionally, key practice points are presented underpinned by scientific evidence and peer-reviewed by Australian and New Zealand societies, education, and professional associations. It is unclear who is responsible for aspects of management and the role of other therapies in the management of adults with asthma.

A better understanding of the role of physiotherapists in the management of New Zealand adults with asthma may highlight areas of unique physiotherapy practice in addition to practice provided by other health professionals. Improved clarification has the potential to improve consistency of health messages and informed evidence-based practice. In addition, confidence levels associated with physiotherapy assessment and management techniques may identify areas of future training and development in relation to evolving scopes of physiotherapy practice.

The purpose of this survey was to determine the current role of New Zealand physiotherapists in adult asthma management and explore their understanding of other health professionals' roles. The survey aimed to establish what assessment and management strategies are used by physiotherapists and their level of confidence, benchmarked against NZA & AAG (Beasley et al., 2020). The survey also aimed to examine what literature informed physiotherapy practice. While participants were also asked to indicate their perceived roles of other health professionals, this manuscript focuses on physiotherapy practice data only.

METHODS

Study design and ethics approval

A cross-sectional observational design was employed. Data were collected using an internet-based anonymous survey questionnaire between April 2022 and October 2022. Ethics approval was obtained from the Taranaki District Health Board research committee.

Questionnaire design and testing

The research questionnaire/survey was developed using a three-step process framed by Tsang et al. (2017). First, a comprehensive literature review was undertaken to establish the construct of interest, i.e., aspects of asthma management

and the roles of health and other professionals (Figure 1). Recently published national guidelines (Beasley et al., 2020) and international guidelines (GINA, 2021; 2022; BTS & SIGN, 2019) were also reviewed. Second, two experienced physiotherapists working with adults with asthma (SM and ZM) devised the survey content based on review findings. The format was guided by key aspects of the New Zealand survey design conducted by Ellis et al. (2018) and Harvey et al. (2019). This included survey structure, question type and order, process of distribution, and reporting. Third, content and face validity were addressed by piloting the survey. A draft survey was piloted by three independent cardio-respiratory physiotherapists who worked with children and youth with asthma and were, therefore, ineligible to partake in the study. An electronic link to the pilot questionnaire was sent, and respondents were asked to complete the questionnaire and comment on four specific domains of interest: content, ease/timing of completion, fluency, and access. Feedback resulted in minimal word change only; no additional assessment or management techniques were identified. A second pilot questionnaire was not required. The final survey was published on an internet-based site, SurveyMonkey (https://www.surveymonkey.com), permitting participant consent, anonymous survey participation and data analysis.

The final survey consisted of 34 questions and comprised a combination of closed and open questions. Four- and five-point Likert scales were used to capture options that ranged from one extreme to the other, recognising that no consensus exists regarding the exact point number (Portney, 2020). Figure 2 outlines the survey questions, format, and specific content.

Participant recruitment and survey circulation

Participants were eligible if they were New Zealand-registered physiotherapists in possession of an annual practising certificate and currently working with adults with asthma in New Zealand.

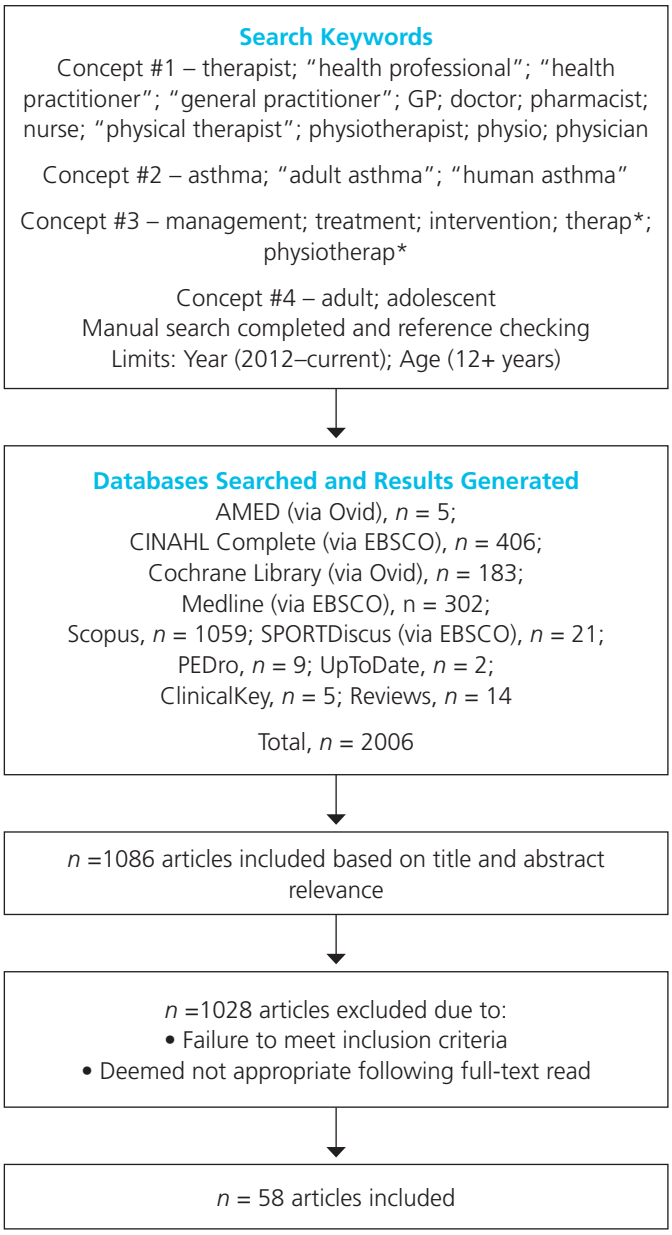
While the exact number of physiotherapists working with adults with asthma is unknown, 6,038 physiotherapists were registered with the regulatory body (Physiotherapy Board of New Zealand, 2022b), of which 4,411 physiotherapists were members of Physiotherapy New Zealand (PNZ) (K. Kennedy, personal communication, February 23, 2023). A subgroup of PNZ members (331) were members of the cardio-respiratory special interest group (K. Kennedy, personal communication, February 23, 2023). As survey distribution is not provided by the Physiotherapy Board of New Zealand (compulsory registration) or PNZ (optional paid membership), survey distribution methods included advertising the web-based link through New Zealand professional physiotherapy forums including the cardio-respiratory special interest group, management networks (Health New Zealand I Te Whatu Ora), and media/social web pages (Physio Stand Up! Facebook page). Snowballing techniques were used to promote participation, with participants encouraged to forward the link to colleagues. An initial email invitation was sent in April 2022, followed by subsequent reminders until the study was closed in October 2022.

Data analysis

Data from the completed questionnaires were exported from SurveyMonkey and analysed using descriptive analysis. Data were reported using numbers and percentages. For open-ended questions that asked for additional responses or comments, responses were grouped into similar categories under common themes framed by conventional content analysis (Hsieh & Shannon, 2005).

Figure 1

Flow Chart Illustrating Study Selection

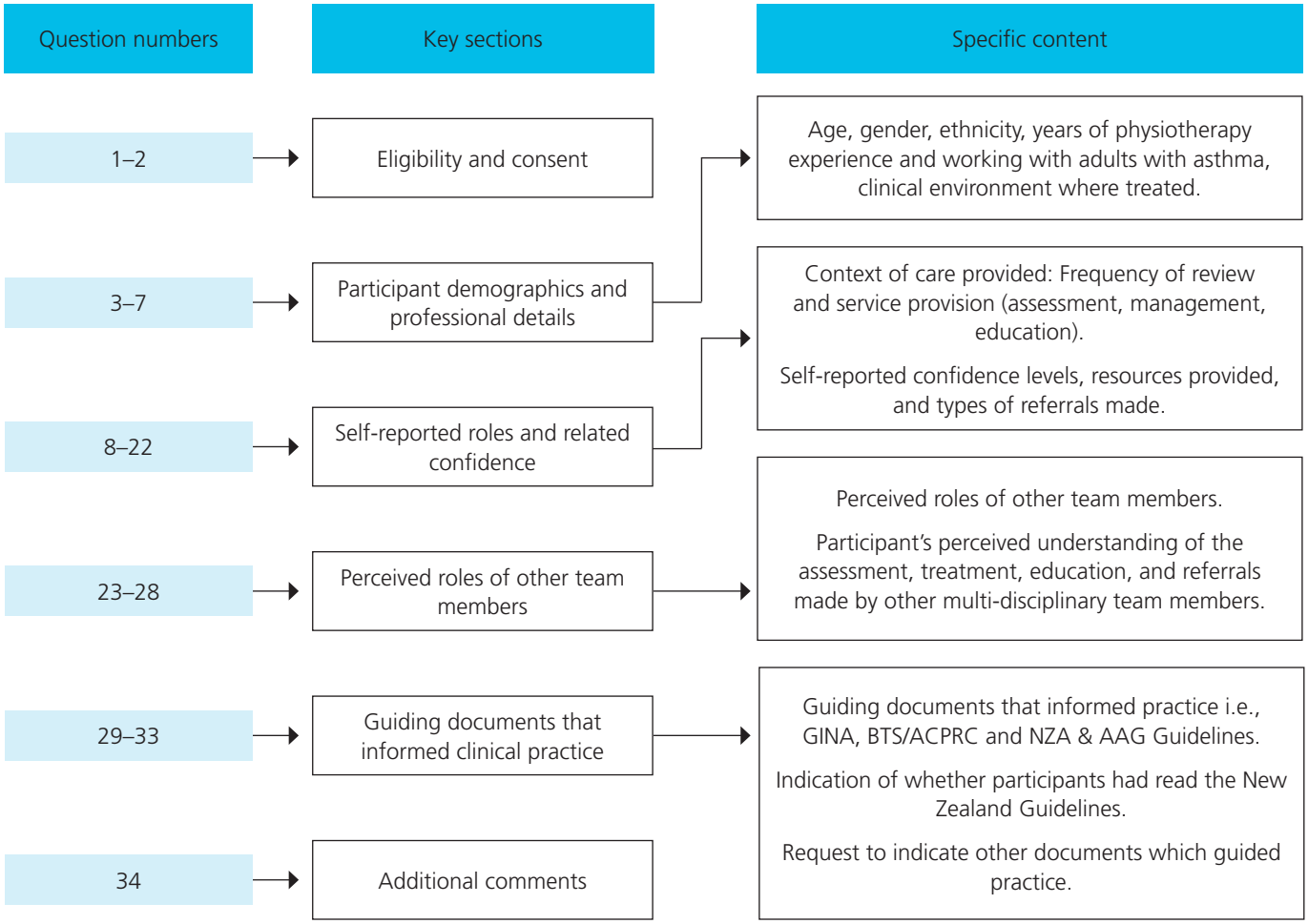


RESULTS

Sixty-two participants met the criteria and responded to the initial demographic questions. Fifty-nine participants responded to further survey questions; these completed data sets were subsequently analysed. While workforce data collected by the Physiotherapy Board does not include areas of clinical practice, 2018 workforce data from PNZ (sample size, *n* = 1147) indicated that 1% identified their area of clinical practice as respiratory

Figure 2

Survey Questions, Sections, and Content



Note. BTS/ACPRC = British Thoracic Society/The Association of Chartered Physiotherapists in Respiratory Care; GINA = Global Initiative for Asthma; NZA & AAG = NZ Adolescent and Adult Asthma Guidelines.

(Reid & Dixon, 2018). Given PNZ membership is optional, the exact number of registered physiotherapists working in cardio-respiratory and/or specifically with adults with asthma is unknown. Within the context of the cardio-respiratory special interest group of 331 members (practising and student members), where physiotherapists are more likely to work with adults with asthma, the response rate was 18%.

Participant demographic and professional details

Gender and ethnicity responses were comparable with workforce data (Physiotherapy Board of New Zealand, 2022a); details are presented in Table 1. Fifty-eight per cent of the respondents had practised for more than 10 years. In relation to working with adults with asthma, 38% of participants had over 10 years of experience, highlighting that participants were both experienced as physiotherapists and were also working with adults with asthma.

The majority of participants (80%) identified their primary employment as a public hospital. Health environments where respondents worked are presented in Figure 3. Information provided by 35 participants regarding settings where adults

Table 1

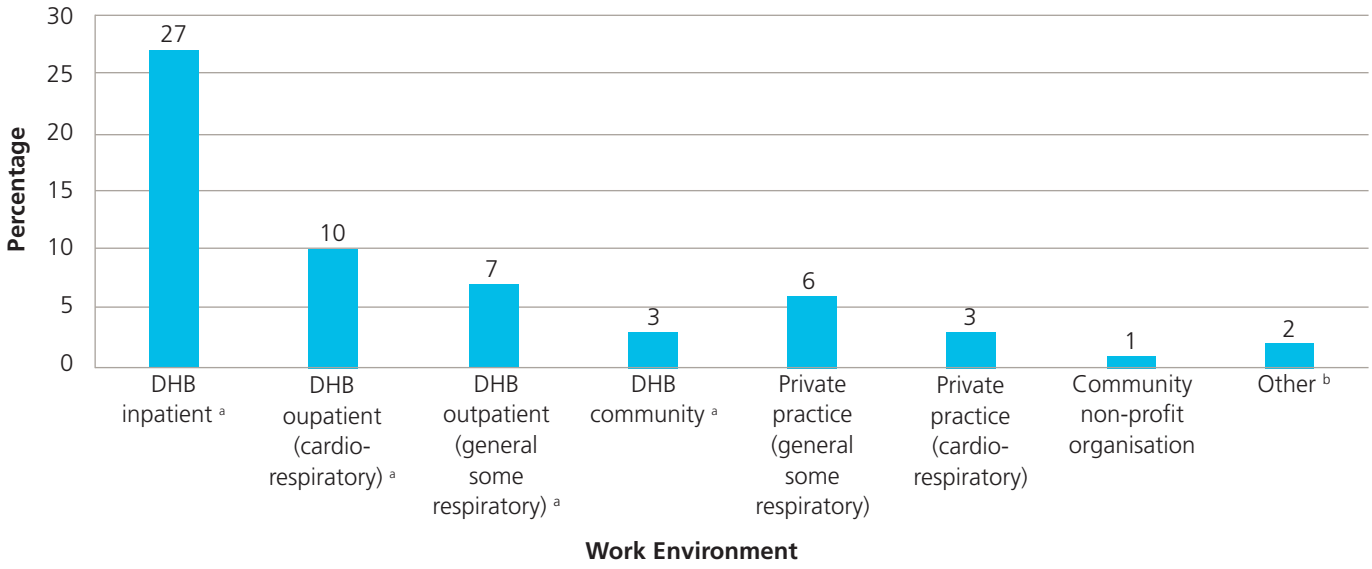
Gender and Ethnicity Details of Survey Respondents Compared to Annual Workforce Data

	Survey respondents %	Workforce survey [a] %
Gender		
Female	80	76
Male	20	24
Gender diverse	0	0.2
Ethnicity		
New Zealand European	64	71
Māori	5	5
Pacific Island	2	1
Asian	14	6
Other	15	18

[a] Reid and Dixon (2018).

Figure 3

Health Environments Where Respondents Worked



Note. DHB = District Health Board.

[a] Health New Zealand/Te Whatu Ora formerly known as DHB (at time of survey distribution).
[b] Other responses: pain management; community physiotherapist.

with asthma were treated included pulmonary rehabilitation, private hospital and rest homes, medical wards, and intensive/critical care. This highlights the diverse health environments in which physiotherapists work with people with asthma in New Zealand. One participant indicated that they provided asthma management to patients receiving elective and acute surgical/orthopaedic admission "where asthma is not their main clinical 'problem' but affects their clinical recovery".

Physiotherapists predominantly worked alongside other health professionals. Multi-disciplinary team composition varied and was found to include nurse/physician/physiotherapist (41%) and nurse/physician/physiotherapist/other health professional (28%), nurse/physiotherapist (5%), or an alternative combination (5%).

Twenty-one per cent of physiotherapy respondents worked independently of other health professionals.

Self-reported roles and related confidence

Physiotherapy assessment

Using a four-point Likert scale ("never", "not often", "often", "very often"), participants were asked how frequently they undertook eight common assessment modalities derived from the literature (Beasley et al., 2020; Bott et al., 2009; BTS & SIGN, 2019; GINA, 2021; 2022). Additionally, confidence levels were rated on a five-point Likert scale (i.e., 1 to 5, with 1 indicating "not confident" and 5 "very confident"). Results are presented in Table 2.

Table 2

Assessment Techniques: Frequency and Confidence

Assessment technique	Never		Not often		Often		Very often		Confidence [a]
	n	%	*n*	%	*n*	%	*n*	%	Weighted *M*
Undertake spirometry	31	53	21	36	6	10	1	2	2.85
Sputum sample collection	11	19	31	53	14	24	3	5	4.10
Order blood test	49	83	5	8	3	5	2	3	1.63
Questionnaires	12	20	19	32	18	31	10	17	4.05
Peak expiratory flow rate monitoring	14	24	14	24	23	39	8	14	3.73
Exercise testing	4	7	20	34	21	36	14	24	4.24
Assess inhaler technique	1	2	9	15	23	39	26	44	4.47
Assess for breathing pattern disorder	1	2	6	10	22	37	30	51	4.19

[a] 1 = not confident to 5 = very confident.

Participants most frequently undertook physiotherapy-specific assessment modalities. Breathing pattern disorders (BPD) were "very often" (51%) or "often" (37%) assessed; 2% "never" undertook this assessment. Exercise testing was "often" undertaken (36%). Similarly, inhaler technique assessment was undertaken "very often" (44%) or "often" (39%). Assessment modalities that were "never" undertaken were ordering blood tests (eosinophil count) (83%) and spirometry (53%); sputum sample collection was "not often" undertaken (53%). Of the most frequently utilised assessment modalities, participants were most confident with BPD assessment (4.19/5), exercise testing (4.24/5), and inhaler technique (4.47/5).

Treatment techniques: Frequency and confidence

Treatment techniques utilised by physiotherapists, their frequency, and participant confidence are presented in Tables 3 and 4. With regards to physiotherapy-specific techniques, breathing exercises/retraining (64%), breathlessness management (54%), and exercise prescription (49%) were "very often" undertaken. In contrast, techniques that were "never"/"not often" undertaken included inspiratory muscle training (17%/66%) and stress incontinence management (14%/54%). Participants were confident with all treatment techniques, especially airway clearance techniques (4.75/5) and exercise prescription (4.68/5).

In terms of generic treatment techniques, aspects of inhaler management were "very often"/"often" identified: use of a spacer (47%/37%), inhaler education including the role of inhalers (39%/47%); inhaler device education (41%/44%). In contrast, nebuliser management, i.e., education was "not often" undertaken (59%) or used (63%). Participants were most confident in the inhaler device (4.29/5) and spacer use (4.41/5).

Education, resources and referrals: Frequency and confidence

Physiotherapy and generic education

Participants frequently and confidently provided physiotherapy and generic education. The three most frequent education topics provided "very often"/"often" were: (a) breathlessness (59%/41%), (b) self-management (68%/29%), and (c) role of inhalers (39%/51%). The three topics less frequently and confidently discussed as either "never"/"not often" were: (a) benefits and entitlements (37%/47%), (b) healthy housing advice (25%/46%), and (c) stress incontinence (12%/56%). Of note, confidence levels aligned with frequency of providing the related education topic. Frequency and confidence level data are presented in Table 5.

Alternative therapies

Participants were asked about the frequency they discussed other therapies. Relaxation (29%/56%), Tai Chi (7%/19%), yoga

Table 3

Physiotherapy-specific Techniques: Frequency and Confidence

Physiotherapy technique	Never		Not often		Often		Very often		Confidence [a]
	n	%	*n*	%	*n*	%	*n*	%	Weighted *M*
Breathing exercises/retraining	0	0	5	8	16	27	38	64	4.56
Airway clearance	1	2	9	15	26	44	23	39	4.75
Exercise prescription	0	0	7	12	23	39	29	49	4.68
Inspiratory muscle training	10	17	39	66	7	12	3	5	3.36
Breathlessness management	0	0	2	3	25	42	32	54	4.64
Stress incontinence management	8	14	32	54	31	31	1	2	3.05
Posture re-education	2	3	15	25	49	49	13	22	4.07
Musculoskeletal management	4	7	29	49	16	27	10	17	3.39

[a] 1 = not confident to 5 = very confident.

Table 4

Generic Treatment Techniques: Frequency and Confidence

Treatment technique	Never		Not often		Often		Very often		Confidence [a]
	n	%	*n*	%	*n*	%	*n*	%	Weighted *M*
Inhaler education	1	2	7	12	28	47	23	39	4.10
Use of inhaler device	1	2	8	14	26	44	24	41	4.29
Use of inhaler aids	6	10	20	34	19	32	14	24	3.92
Use of spacer	1	2	8	14	22	37	28	47	4.41
Nebuliser education	9	15	35	59	12	20	3	5	3.44
Use of nebuliser	11	19	37	63	8	14	3	5	3.44

[a] 1 = not confident to 5 = very confident.

(2%/22%), and singing (2%/15%) were "very often"/"often" discussed. Other therapies listed, including acupuncture, Buteyko, aromatherapy, wind instrument playing, etc., were "never" or "not often" discussed. Rongoā, a traditional Māori medicinal practice, was "never" (85%) discussed.

Referrals made

Of the 59 participants, referrals were made to several health professionals and services. The most frequent referrals, i.e., "very often"/"often" made, were to GPs (5%/37%), nurses (3%/42%), respiratory physicians (7%/25%), and pharmacists (5%/25%). Referrals that were "never"/"not often" included the Asthma and Respiratory Foundation (31%/42%), Asthma NZ (34%/44%), and WINZ/Kāinga Ora (61%/36%). Referrals to additional health providers were noted as social worker, community specialist, and the continence service.

Resources

Education resources were provided but primarily in English. Resources were "very often"/"often" provided from the Asthma and Respiratory Foundation NZ (5%/49%) and Asthma NZ (5%/42%). Resources were provided in English (41%/39%). In contrast, resources in te reo Māori were either "never"/"not often" (49%/44%) provided; results are similar for resources in other languages (58%/37%). Other resources provided included apps, pictures and diagrams, and self-compiled patient handouts. One respondent indicated they would "rarely provide/identify resources unless specifically asked," while another stated, "Most already have a lot of information".

Guiding documents

Physiotherapists used key documents to guide their clinical practice in adult asthma management. Results are presented in Table 6. Additional resources described by respondents included

Table 5

Education Provided: Frequency and Confidence

Education topic	Never		Not often		Often		Very often		Confidence [a]
	n	%	*n*	%	*n*	%	*n*	%	Weighted *M*
Pathophysiology	1	2	13	22	26	44	19	32	4.14
Self-management	0	0	2	3	17	29	40	68	4.27
Action plan	1	2	17	29	23	39	18	31	3.80
Role of inhalers	1	2	5	8	30	51	23	39	4.25
Role of antibiotics	7	12	26	44	16	27	10	17	3.73
Vaccines	9	15	21	36	17	29	12	20	3.80
Smoking cessation	2	3	18	31	20	34	19	32	4.02
Trigger management	3	5	18	31	24	41	14	24	3.58
Lifestyle changes	1	2	13	22	30	51	15	25	3.97
Stress incontinence	7	12	33	56	17	29	2	3	3.10
Breathlessness	0	0	0	0	24	41	35	59	4.46
Benefits and entitlements	22	37	28	47	9	15	0	0	2.17
Healthy housing advice	15	25	27	46	12	20	5	8	2.41

[a] 1 = not confident to 5 = very confident.

Table 6

*Guiding Documents Used by Respondents (*N = *56)*

Guiding document	Do not use		Not often		Often		Very often	
	n	%	*n*	%	*n*	%	*n*	%
Global Initiative for Asthma (2021) [a]	24	43	16	29	13	23	3	5
Guidelines for the Physiotherapy Management of the Adult, Medical, Spontaneously Breathing Patient (Bott et al., 2009) [b]	14	25	18	32	20	36	4	7
Asthma and Respiratory Foundation New Zealand adolescent and adult asthma guidelines (Beasley et al., 2020) [c]	6	11	16	29	26	46	8	14

[a] Global Initiative for Asthma (2021).
[b] Bott et al. (2009).
[c] Beasley et al. (2020).

research articles (*n* = 4), DHB resources (*n* = 2), webinars (*n* = 1), and BTS guidelines (*n* = 1).

DISCUSSION

This study was the first survey to capture current physiotherapy practice in New Zealand and explored current practice in relation to NZA & AAG (Beasley et al., 2020). Selected survey questions aimed to explore the frequency and confidence of New Zealand physiotherapists in assessment and management techniques of adults with asthma and identify which guidelines informed their practice.

The respondents' profiles indicated that survey participants were experienced physiotherapists and also experienced in working with adults with asthma. Health New Zealand I Te Whatu Ora Taranaki (formally District Health Boards) were more represented (80%) compared with other employment areas, including community and private health care settings. Given 57% of physiotherapists in 2022 workforce data were identified as employed or self-employed in private practice and 27% employed by hospital and health services (Physiotherapy Board of New Zealand, 2022a), data from this survey suggest that adults with asthma are primarily managed in traditional respiratory health environments compared with private practices, albeit that 15% provided asthma management in general or cardio-respiratory-based private practices. With asthma management predominantly provided by Health New Zealand I Te Whatu Ora health providers, this may explain why over 70% of physiotherapists who completed the survey work with other health professionals to provide care and, therefore, associated referrals were low. Interestingly, physiotherapists, albeit primarily from Health New Zealand I Te Whatu Ora, either "never" or "not often" referred to (as opposed to communicated with) the patient's GP (27%/31%, respectively). This may represent either a gap in the care management continuum from Health New Zealand I Te Whatu Ora or private practice and primary care, or indicate that referrals were made to the physiotherapy service. An extension of the survey specifically focused on private practitioners' management of adults with asthma may better clarify differences between Health New Zealand I Te Whatu Ora and private practice communication with primary care. For adults with severe asthma, referral criteria, care pathways, additional education and tools, and ongoing communication are recommended between multi-disciplinary team members (MDT) specialist teams and primary care (Chung et al., 2018). Therefore, physiotherapists have a key role in initiating referrals to GP and/or Health New Zealand I Te Whatu Ora-based respiratory physiotherapists who may assess and manage their care independently or within an MDT team.

The NZA & AAG (Beasley et al., 2020) call for a holistic approach to providing asthma care. Co-ordinated care and multi-disciplinary team (MDT) management appear better facilitated in traditional health environments, including outpatient settings, when, ideally, there is access to diagnostic testing such as spirometry. Co-ordinated and personalised care, advocated and reinforced by all team members, working in conjunction with primary care providers improves health outcomes (Burke et al., 2016; Chung et al., 2018). Additionally, "treatable traits" management, a new care paradigm in the management of chronic respiratory diseases such as asthma, can be readily implemented. This is where an adult with asthma can be assessed for a specified set of treatable problems and individualised management strategies designed and implemented based on multi-dimensional assessment (McDonald et al., 2019). With the exception of pharmacological management, physiotherapists are ideally placed to assess and provide asthma management that is personalised and goal-orientated.

The 2020 NZA & AAG (Beasley et al., 2020) called for Māori and Pasifika leadership to develop wrap-around services and accessible asthma management programmes and to address social determinants of asthma. Of the respondents, 5% self-reported their ethnicity as Māori and 2% as Pacific. While Māori and Pacific respondents were representative of the physiotherapy workforce (Table 1), their numbers are not proportional to the number of Māori and Pacific adults living with asthma, i.e., 16.4% and 14.5% respectively (Telfar Barnard & Zhang, 2021). This highlights the need to improve the number of Māori and Pacific physiotherapists within the workforce and working in respiratory physiotherapy. In the interim, given 61% of respondents reported as New Zealand European, the responsibility lies with physiotherapists to ensure they provide individualised, client-centred, and whānau/family-focused physiotherapy care that also prioritises cultural respect and safety, essential components of threshold competencies required of registered physiotherapists (Physiotherapy Board of New Zealand and Physiotherapy Board of Australia, 2015). Projected physiotherapy workforce data for 2035 does not indicate a more representative Māori and Pacific physiotherapy workforce relative to New Zealand demographics (Physiotherapy Board of New Zealand, 2014), indicating cultural competency will continue to be an essential component of physiotherapy practice. Co-design is essential to ensure practices and services are designed "for" health consumers, especially Māori communities, rather than "on" them (Kidd et al., 2021) and that practices and services are culturally responsive and inclusive.

Physiotherapy's role in asthma management

Historically, the evidence base for physiotherapy in adults with asthma was considered ambiguous (Nowobilski et al., 2013). However, the role of physiotherapy has become more defined with therapy aimed at reducing symptom burden and exacerbation frequency, and improving quality of life (BTS & SIGN, 2019; Garagorri-Gutiérrez & Leirós-Rodríguez, 2020; Nowobilski et al., 2013). Pharmacological management remains a cornerstone of therapy. Results from this study indicate that physiotherapists were involved in aspects of inhaler management, namely assessing inhaler technique, peak expiratory flow rate monitoring, and related education. Nebuliser education and use were less frequently discussed, likely representing the move away from nebulised therapy. While these roles were not specific to physiotherapy and could be undertaken by any member of the MDT, study findings indicate physiotherapists are very much involved in pharmacological management, albeit not medication prescription.

Techniques synonymous with respiratory physiotherapy were frequently undertaken by physiotherapists in this study, and included BPD assessment and treatment and exercise testing

and prescription. Additionally, airway clearance, breathlessness management, and postural education were more often/very often provided than not. In a systematic review of the effects of physiotherapy treatment in patients with asthma (Garagorri-Gutiérrez & Leirós-Rodríguez, 2020), the results of 12 studies found that physiotherapy provides diverse treatment options that have a positive impact on people with asthma, specifically symptom management, quality of life, and reduced medical visits and hospital admissions. Aspects of physiotherapy treatment, e.g., BPD management, are now advocated in asthma guidelines (BTS & SIGN, 2019; GINA, 2023) to complement pharmacological management, especially in people with asthma whose symptoms remain problematic and whose quality of life is impaired. As such, the physiotherapist's role is better justified, especially within an MDT team, recognising physiotherapy's unique and complementary role. Physiotherapy, and by association physiotherapists, should therefore be included in future revisions of asthma guidelines in New Zealand.

Physiotherapists in this study also provided patients/whānau with asthma education and, in particular, self-management strategies. While self-management can be all-encompassing, information typically includes how to manage deteriorating asthma (also known as an action plan), inhalers, and lifestyle management. Early literature pertaining to the effectiveness of self-management strategies/plans ranged from enthusiasm to doubt (Gibson & Powell, 2004; Toelle & Ram, 2004). More contemporary literature advocates self-management asthma education as inherent in routine care (Beasley et al., 2020; Pinnock, 2015). A whole-systems approach with culturally appropriate, demographic, and age-specific resources combined with professional skills (Pinnock, 2015) is required to effectively implement self-management as a person- and population-centred strategy. Self-management strategies and education are fundamental to physiotherapy training and clinical practice as defined by the Physiotherapy practice thresholds and key competencies (Physiotherapy Board of New Zealand and Physiotherapy Board of Australia, 2015). Physiotherapists in this study not only provided education on aspects of management, they also provided resources produced by the Asthma and Respiratory Foundation NZ and Asthma NZ – with both organisations providing a wide variety of NZ-specific resources. Interestingly, resources were predominantly in English, with 49% of resources "never" provided in te reo Māori or other languages (58%). This may highlight that the resources and educational material provided met the needs of English-proficient adults with asthma. However, this may also highlight that insufficient resources are provided that are both culturally and educationally responsive to the ethnically diverse population of New Zealand.

Less frequent and confident education topics discussed by physiotherapists in this study related to stress incontinence and wider management, i.e., benefits and entitlements and healthy housing advice. While stress incontinence is not featured in Asthma Guidelines, including the NZA & AAG (2020), GINA (2021; 2022), or BTS & SIGN (2019), physiotherapists are encouraged to question people with respiratory conditions that include cough (Bott et al., 2009). Interestingly, this guiding document into the physiotherapy management of the adult, medical, spontaneously breathing patient (Bott et al., 2009) was referred to by participants (7% "very often"/36% "often"), highlighting that this historical document informed some practice but not consistently.

Benefits, entitlements, and healthy housing advice were also not frequently discussed with adults with asthma. Nine of 59 participants indicated the involvement of a social worker who would typically address these pertinent topics. Access to funding and healthy, warmer homes are key to health and wellbeing. Improved healthy housing is particularly pertinent to those in low socioeconomic areas and those with respiratory conditions (Heaps, 2023; Telfar Barnard & Zhang, 2021). Physiotherapists may provide information, refer to colleagues or agencies, or advocate for adults with asthma to ensure they access entitlements. Heaps (2023) argues that all health professionals advocate for "upstream population health determinants that promote equitable asthma outcomes" (p. 15). Physiotherapists' role in asthma and respiratory care should, therefore, extend to influencing wider social policy, policy development, and population health initiatives that seek to optimise health equity.

Advancing physiotherapy practice

Study findings indicate that physiotherapists assess, treat, and educate patients in diverse health environments. Generic asthma management is provided with the exception of pharmacological management, as well as traditional and physiotherapy-specific modalities, including breathing pattern, posture re-education, or airway clearance. This supports the unique role of physiotherapy in the management of New Zealand adults with asthma.

Physiotherapists who responded provide evidence-based practice framed by guiding documents pertinent to asthma management. While the role of physiotherapy within key documents, including the 2020 NZA & AAG (Beasley et al., 2020), is absent or limited, the appointment of a physiotherapist in 2021 to the Asthma and Respiratory Foundation NZ Scientific Advisory Board addresses the previous gap in representation, and provides the opportunity to influence future guiding documents.

The projected GP shortage in New Zealand and the anticipated impact on healthcare provision and the health of the New Zealand population (Grimmond et al., 2021), including people with asthma, creates an opportunity for physiotherapists to address this gap. Physiotherapy practice thresholds provide a reference point for competence (Physiotherapy Board of New Zealand and Physiotherapy Board of Australia, 2015); advanced practice and specialist scope enable, for example, respiratory physiotherapists to fill these gaps. Areas identified in this study as less frequently undertaken or less confident, for example, ordering relevant blood tests (83% indicated "never" undertaken), may be addressed with additional training and governance. Given that blood results are used to inform asthma management including inhaler therapy, blood testing and result analysis are areas where physiotherapy practice can evolve.

Unlike the United Kingdom, where supplementary and independent prescribing rights are legal, supported by Health and Care Professions Council validated and accredited courses (Chartered Society of Physiotherapy, 2021), physiotherapists

do not yet have prescribing rights or access to relevant courses. Physiotherapists are a named class of professionals and are included in the Medicines Standing Order Regulations (Cartwright, 2002) who may administer and/or supply specified medications authorised by a medical practitioner and, therefore, may provide medicines via standing order such as inhalers when a process has been established (Physiotherapy Board of New Zealand, 2018). Including pharmacology in physiotherapy undergraduate training, supported by post-graduate or Physiotherapy Board-accredited courses and governance would facilitate the evolution of prescribing asthma medications by physiotherapists. For adults with asthma, improved access to well-placed physiotherapists throughout New Zealand may improve equity and access and, therefore, respiratory and asthma management.

Strengths and limitations

Key strengths relate to the generation of New Zealand-specific data regarding physiotherapy practice in the management of adults with asthma. A robust survey tool was developed to explore clinical practice. Survey content was framed by literature and, specifically, the NZA & AAG (Beasley et al., 2020), and the design, by two New Zealand practice-based surveys. Several limitations were identified. First, the survey was conducted online. While considered a rich domain for conducting survey research (Wright, 2005), it is not possible to know how many New Zealand physiotherapists the survey reached. Consequently, non-responders could not be followed up (Wright, 2005). Second, only 59 respondents completed this survey despite four reminders sent over the recruitment period; results, therefore, cannot be generalised to the wider practice of New Zealand physiotherapists. Third, the survey relied on self-reported data, which may not reflect actual behaviour and may, therefore, potentially introduce bias (Nelson, 1996; Robertson, 1992). However, self-reported measures are generally considered valid (Portney, 2020) and a common measure to obtain direct information. Finally, the term "adult" was not clearly defined to survey respondents. This may have limited response rates as different definitions exist among literature and guidelines, i.e., over 15 or 18 years. However, the majority of respondents worked in Health New Zealand I Te Whatu Ora, where services are traditionally paediatric or adult and have clear age parameters. Irrespective of limitations and low response rate, the survey findings provide a useful insight into physiotherapy practice. A snapshot of respondents' asthma management in New Zealand is provided and areas for future practice considerations are identified.

CONCLUSION

Study findings indicate that physiotherapists in New Zealand who responded to the survey provide a broad range of generic and physiotherapy-specific assessment and management techniques framed by guiding documents, including the 2020 NZA & AAG (Beasley et al., 2020). Areas of reduced confidence highlight opportunities for training and mentorship to enhance and advance physiotherapy practice. In the absence of a physiotherapy workforce representative of the demographics of New Zealand adults with asthma, cultural considerations in physiotherapy practice and healthcare delivery are essential to promote health equity. Political and policy change is required for improved respiratory health. While the response rate was limited, this study provides a useful insight into New Zealand physiotherapy practice in the management of adults with asthma and identifies areas for more holistic practice, as well as future advancement.

KEY POINTS

1. An insight into current physiotherapy practice demonstrates that physiotherapists are actively involved in the assessment and management of adults with asthma in New Zealand.
2. Findings indicate that physiotherapists assess, treat and provide education to adults with asthma in New Zealand, providing generic and physiotherapy-specific care.
3. Physiotherapy is framed by guiding documents including New Zealand Adolescent and Adult Asthma Guidelines published in 2020 (Beasley et al., 2020).
4. Physiotherapists are well placed to influence social determinants and advocate at a political and policy level for improved respiratory health.
5. Areas of reduced confidence and competence in asthma assessment and management are identified to influence advancing physiotherapy practice including respiratory physiotherapy.

DISCLOSURES

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PERMISSIONS

This study was approved by the Taranaki District Health Board Research Committee.

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